No. 840,873. PATENTED JAN. 8, 1907.

W. E. SPARKS.

LOCK.

APPLICATION FILED SEPT. 12, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

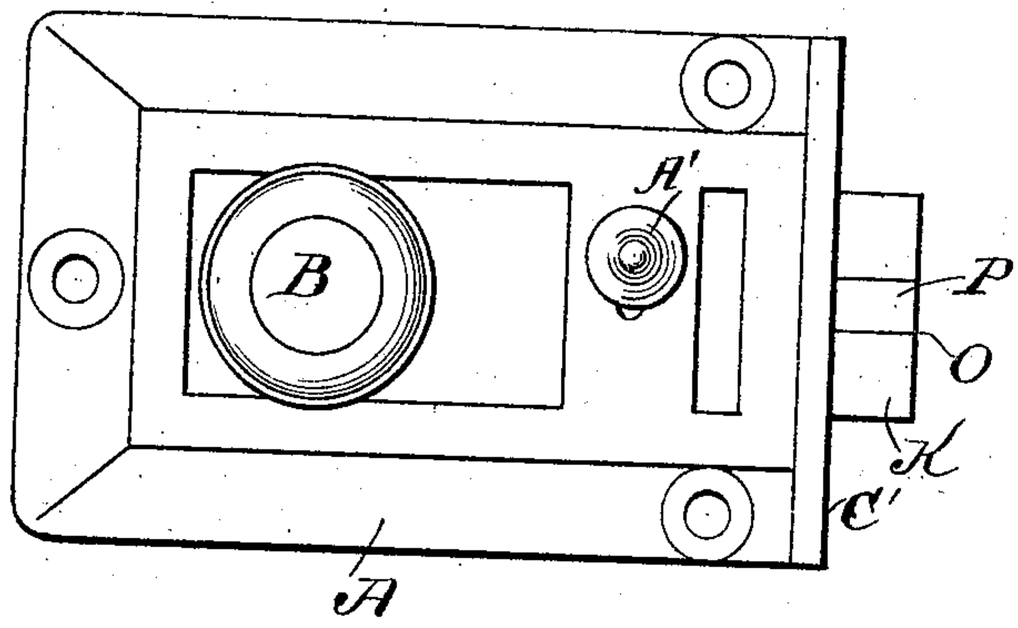



Fig. 2.

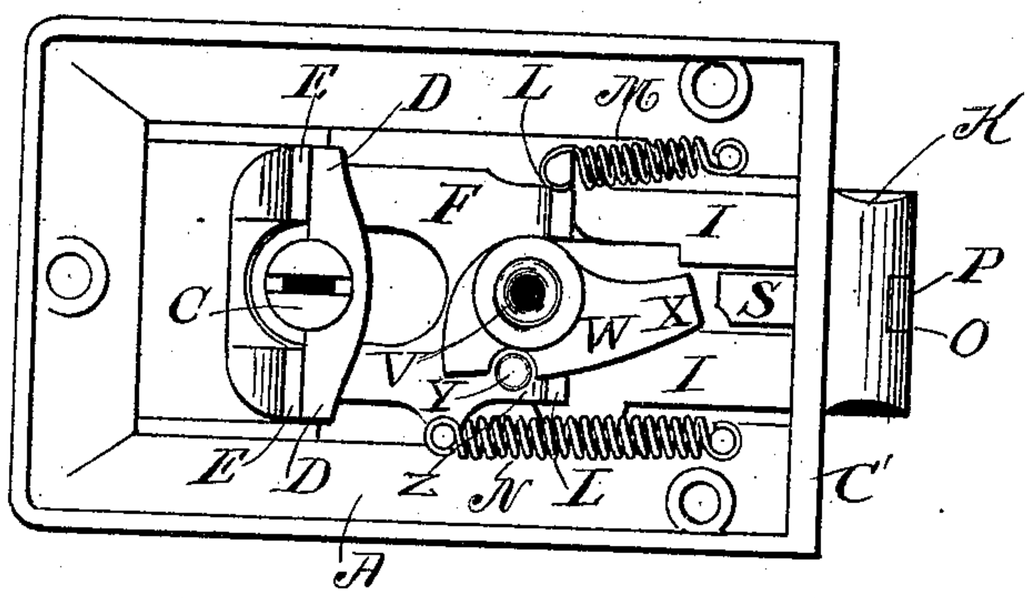
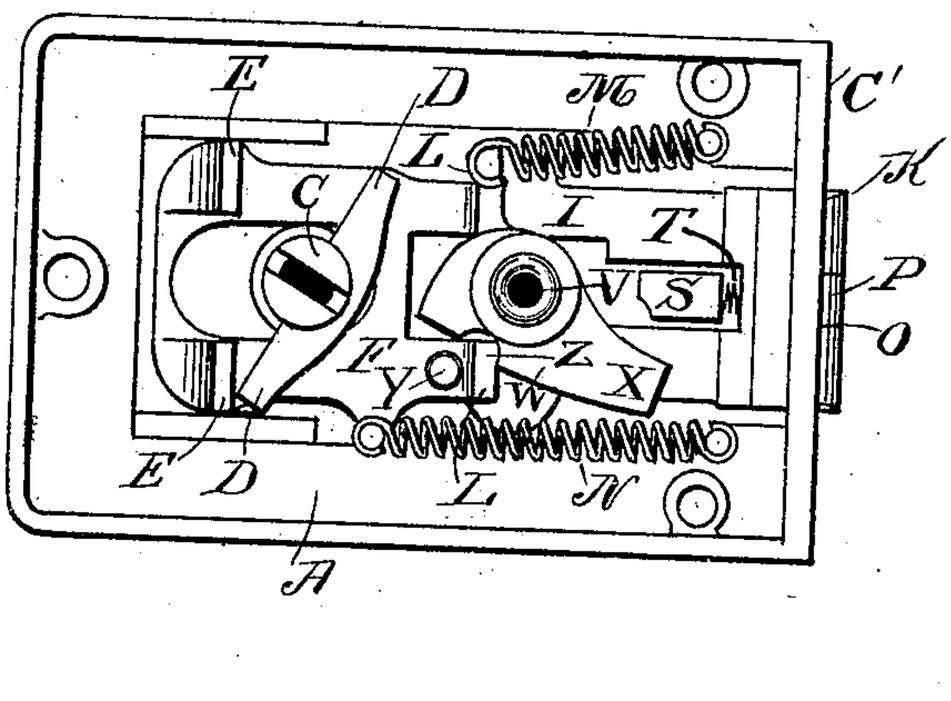



Fig. 3.

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2 SHEETS—SHEET 2.

Fig. 4.

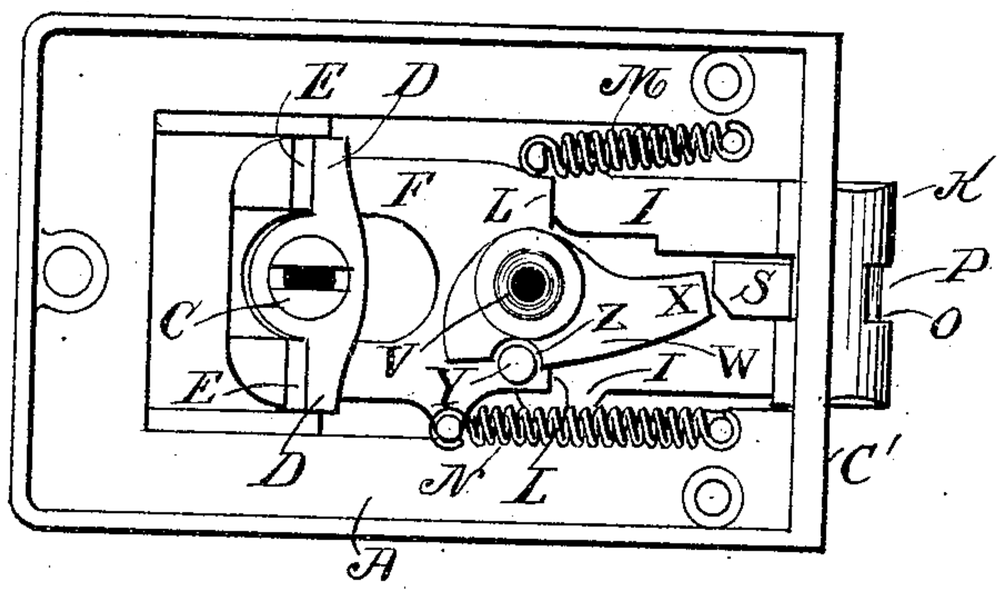



Fig. 5.

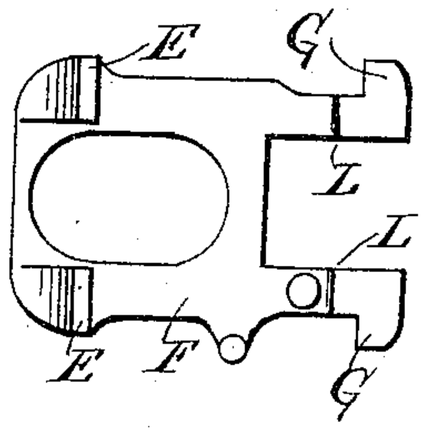



Fig. 6

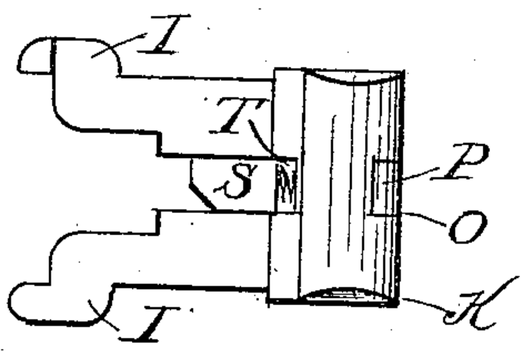



Fig. 7.

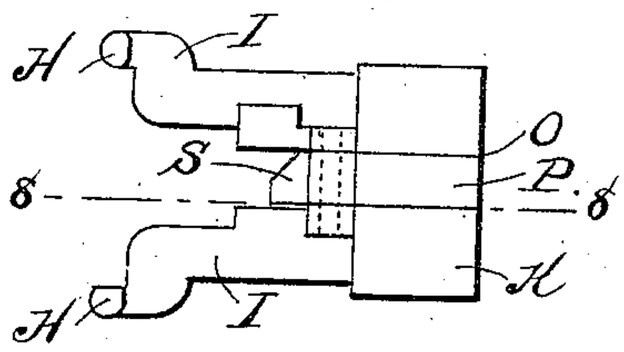



Fig. 8.

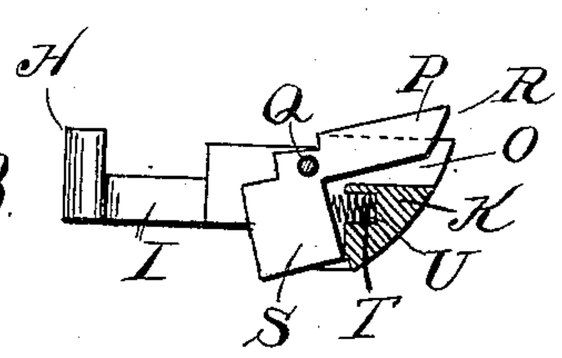
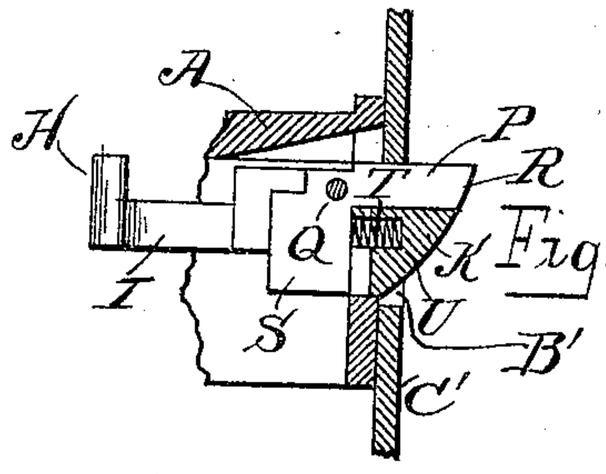



Fig. 9.




Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM E. SPARKS, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO SARGENT & COMPANY, OF NEW HAVEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

## LOCK.

No. 840,873. Specification of Letters Patent. Patented Jan. 8, 1907.

Application filed September 12, 1904. Serial No. 224,109.

*To all whom it may concern:*

Be it known that I, WILLIAM E. SPARKS, of the city and county of New Haven, State of Connecticut, have invented new and useful Improvements in Locks, of which the following is a full, clear, and exact description when taken in connection with the accompanying drawings, which form a part thereof, and in which—

Figure 1 represents a front elevation of a lock embodying my invention; Fig. 2, a rear view of the same, the cap-plate having been removed; Figs. 3 and 4, similar views with the parts shown in different positions; Fig. 5, a detail rear view of the yoke; Figs. 6 and 7, rear and front detail views, respectively, of the latch; and Figs. 8 and 9, central longitudinal sections through the latch on lines 8 8 of Fig. 7, in Fig. 9 latch being shown in engagement with the keeper.

In all figures similar letters of reference represent like parts.

This invention relates to locks, and has for its object the production of a lock having a novel form of safety-catch which prevents the bolt when in engagement with the keeper from being retracted by any external means other than the lock itself. When in use on a door, it will thus be impossible for a sneak thief or other person to insert an instrument between the keeper and the lock and retract the latch.

To this end the invention consists in a safety-catch pivoted to the bolt, adapted to engage the side of the keeper when the bolt is protracted and prevent the retraction of the bolt except by means of the key, knob, or other legitimate means.

The invention further consists of novel means for regulating the movement of the safety-catch, together with other improvements and combinations of parts set forth and claimed hereinafter.

Referring to the drawings for a more particular description, the part designated by the letter A represents the lock-case open on its reverse side, which opening is adapted to be closed by a cap-plate. (Not shown.) The invention is shown applied to a rim-lock, but is adapted for use in any suitable form of lock.

B designates the knob, and C the hub or shank to which the knob is connected in any suitable manner. The hub C has lateral wings D, adapted to engage lugs E on a sliding yoke F. The yoke F at its forward end has projections G, which engage depending studs H on rear projections I of the latch-bolt K, whereby upon the rearward movement of the yoke F under pressure exerted on the hub the latch-bolt K will be retracted. On the other hand, the projections I of the latch-bolt K are adapted to come in contact with a flange or flanges L on the yoke, so that upon the retraction of the bolt K the yoke will be forced rearward also. The latch-bolt is, however, capable of a slight movement independent of the yoke before the projections I contact with the flanges L.

A spring M, connecting case A and latch-bolt K, normally retains the bolt in its protracted position, and a spring N, connecting the case A and yoke F, normally holds the yoke in the same position. These parts may, however, be of any suitable construction and are not, therefore, described in detail.

The forward end of the latch-bolt is provided with a longitudinal recess O, in which is pivoted at Q a safety-catch P, having substantially the form of a bell-crank lever. One end R of the safety-catch is constructed to conform with the outer end or face of the bolt K, and the other end S is adapted to be engaged by a spring T, fitting in a socket U in the bolt, so that normally the end R of the catch will fit in the groove or recess O and conform to the outer end of the bolt K.

Pivoted on a post V on the case A is a locking-dog W, the forward end or nose X of which is adapted to project behind the part S of the safety-catch P when the parts are at rest, Figs. 2 and 4. A post Y on the yoke engages a groove or notch Z in the dog W, so that upon the retraction of the yoke the post Y will tend to rotate the dog W, swinging the nose X from its position in the rear of the safety-catch P, as shown more particularly in Fig. 3.

A thumb-piece A′ is shown in Fig. 1 on the outside of the casing A, which is adapted, by means of suitable mechanism, (not shown,) to lock the latch-bolt K against retraction in a well-known manner when the thumb-piece is shifted to a proper position.

The operation of the lock is as follows: When the parts are in their normal position, (shown in Fig. 2,) the dog W engages the arm S of the safety-catch P, so that the bolt can-

not be retracted unless the dog W is swung out of the path of the safety-catch, Fig. 3, or the safety-catch P is swung on its pivot, Fig. 8. The first of these operations takes place when the bolt is retracted by means of the knob, for when the hub C of the knob-shank is rotated and retracts the yoke F, as shown more particularly in Fig. 3, the post Y on the yoke engages in the groove Z of the dog W and rotates the dog, so that the nose X is removed from the path of the arm S of the safety-catch P. The bolt may then be retracted on the continued rearward movement of the yoke by means of the engagement between the projections G on the yoke and depending studs H on the bolt. Upon the release of the knob the parts are restored to their normal position and the bolt is protracted by means of the spring M or N. The second of these operations takes place when the bolt is retracted by pressure on its face, (as when the door is closing and the face of the bolt strikes the keeper.) The lower arm S of the safety-catch P is engaged by the nose X of the checking-dog W, so that rearward movement of the bolt tends to swing the safety-catch P on its pivot to substantially the position shown in Fig. 8, where the catch may swing upward into a suitable slot B′ in the face-plate C′ of the casing A. At this point when the parts have assumed the positions shown in Fig. 4 the projections I of the bolt will strike against the flange L on the yoke and force the yoke rearward; but this rearward movement of the yoke rotates the dog W by means of the stud Y, so that the nose X is gradually drawn out of the path of the arm S, whereupon the bolt may be forced entirely back without being further checked by the dog.

Under the conditions suggested above the safety-catch will not check the latch-bolt; but when the bolt is shot home into the keeper (see Fig. 9) and an attempt is made to retract the bolt by operating on the projecting portion of the bolt the safety-catch comes into play. The locking-dog W strikes against the arm S of the safety-catch P, and the latter is not free to turn on its pivot, owing to its engagement with the keeper, so that the bolt cannot be retracted.

Having now described my invention, which may vary in its details without departing from the spirit thereof, what I claim, and desire to secure by Letters Patent, is—

1. In a lock, the combination with the case; of a bolt movable in said case; a safety-catch pivoted to the bolt; a device adapted to engage said safety-catch and rotate it when the bolt is pushed in; and a keeper adapted to engage the bolt and prevent the rotation of said safety-catch; substantially as described.

2. In a lock, the combination with the case; of a bolt movable in said case; a safety-catch pivoted to the bolt; and a device adapted to engage said safety-catch and rotate it when the bolt is pushed in, and mechanism operated by the bolt adapted to withdraw said device from said engagement upon the rotation of said catch, substantially as described.

3. In a lock, the combination with the case; of a bolt movable in said case; a safety-catch pivoted to the bolt; a device adapted to engage said safety-catch and rotate it when the bolt is pushed in; and mechanism for withdrawing said device from such engagement, substantially as described.

4. In a lock, the combination with the case; of a bolt movable in said case; a safety-catch pivoted to the bolt; a device adapted to engage said safety-catch and rotate it when the bolt is pushed in; and mechanism for withdrawing said device from such engagement upon the further rearward movement of the bolt, substantially as described.

5. In a lock, the combination with the case; of a bolt movable in said case; a safety-catch on the bolt; a device adapted to engage said safety-catch when the bolt is pushed in; a retracting member for the bolt; and mechanism for withdrawing said device from such engagement only upon the rearward movement of said member, substantially as described.

6. In a lock, the combination with the case; of a bolt movable in said case; a safety-catch pivoted to the bolt; a device adapted to engage said safety-catch to rotate it when the bolt is pushed in; a retracting member for the bolt adapted to withdraw said device from such engagement upon the rearward movement of the bolt, substantially as described.

7. In a lock, the combination with the case; of a bolt movable in said case; safety-catch pivoted to the bolt; a device adapted to engage said safety-catch to rotate it when the bolt is pushed in; mechanism for withdrawing said device from such engagement operated by the bolt, after the bolt is partially retracted, substantially as described.

8. In a lock, the combination with the case; of a bolt movable in said case; a safety-catch pivoted to the bolt; a device adapted to engage said safety-catch to rotate it when the bolt is pushed in; a sliding member for retracting the bolt, adapted to withdraw said device from such engagement, said sliding member being retracted by the bolt upon its continued retraction after it has been partially pushed in, substantially as described.

In witness whereof I have hereunto set my hand on the 29th day of August, 1904.

WILLIAM E. SPARKS.

Witnesses:
L. F. BREESE,
F. M. VALENTINE.